

Fig. 1

1: MASTER
120: BASE CYCLE COUNTER
130: TRANSMISSION MANAGEMENT TABLE
140: SYNCHRONIZATION POINT DETECTING SECTION
150: INSTRUCTION TRANSMISSION PROCESSING
3: IEEE1394 TRANSMISSION PATH
21, 2n: SLAVE
121, 12n: BASE CYCLE COUNTER
141, 14n: SYNCHRONIZATION POINT DETECTING SECTION
231, 23n: TRANSMISSION TIMING INFORMATION
251, 25n: RESPONSE TRANSMISSION PROCESSING

Fig. 2

130: MASTER TRANSMISSION MANAGEMENT TABLE
①: TOTAL NUMBER OF CYCLES
②: CYCLE COUNTER
③: NUMBER OF INSTRUCTIONS TO TRANSMIT
④: DESTINATION SLAVE NO.
231, 23N: SLAVE TRANSMISSION TIMING INFORMATION
⑤: TOTAL NUMBER OF CYCLES
⑥: INSTRUCTION CYCLE
⑦: RESPONSE CYCLE

Fig. 3

- ①: CLOCK
- ②: BASE CYCLE COUNTER
- ③: SYNCHRONIZATION POINT DETECTING SECTION
- ④: SYNCHRONIZATION SIGNAL
- ⑤: SYNCHRONIZATION POINT
- ⑥: COMMUNICATION PERIOD
- ⑦: NEXT COMMUNICATION PERIOD
- ⑧: BASE CYCLE

Fig. 4

- ①: CLOCK
- ②: BASE CYCLE COUNTER
- ③: SYNCHRONIZATION POINT DETECTING SECTION
- ④: SYNCHRONIZATION SIGNAL
- ⑤: SYNCHRONIZATION POINT
- ⑥: COMMUNICATION PERIOD
- ⑦: BASE CYCLE
- ⑧: READ THE INSTRUCTION DATA
 - PROCESS THE INSTRUCTION
 - EDIT RESPONSE DATA

Fig. 6

①: EXECUTE FOR EACH Cycle_Synch EVENT

②: MASTER INSTRUCTION TRANSMISSION PROCESSING

S1000: READ BASE CYCLE COUNTER VALUE AND SET VALUE TO
VARIABLE p

S1001: READ THE NUMBER OF TRANSMISSION INSTRUCTIONS
CORRESPONDING TO CYCLE COUNTER p AND DESTINATION SLAVE NO.
FROM MASTER TRANSMISSION MANAGEMENT TABLE AND SET THESE
DATA TO VARIABLE q AND ARRAY VARIABLE S[k]

S1002: LOOP START

K: 0 TO q-1

S1003: TRANSMIT INSTRUCTION DATA TO SLAVE S[k]

S1004: LOOP END

Fig. 7

①: EXECUTE FOR EACH Cycle_Synch EVENT

②: SLAVE RESPONSE TRANSMISSION PROCESSING

S2000: READ BASE CYCLE COUNTER VALUE AND SET VALUE TO
VARIABLE p

S2001: DOES p MATCH RESPONSE CYCLE IN SLAVE TRANSMISSION
TIMING INFORMATION?

③: YES

RESPONSE CYCLE

④: NO

NOT RESPONSE CYCLE

S2002: TRANSMIT RESPONSE DATA

Fig. 8

①: EXECUTE FOR EACH Cycle_Synch EVENT

②: SLAVE SIDE SYNCHRONIZATION POINT DETECTING SECTION 1

S3000: INSTRUCTION DATA RECEIVED IN THE LAST CYCLE?

③: YES

RESPONSE CYCLE

④: NO

NOT RESPONSE CYCLE

S3001: SET INSTRUCTION CYCLE VALUE IN SLAVE TRANSMISSION
TIMING INFORMATION PLUS 1 TO BASE CYCLE COUNTER

S3005: INCREMENT BASE CYCLE COUNTER

S3002: BASE CYCLE COUNTER>=TOTAL NUMBER OF CYCLES?

⑤: YES

SYNCHRONIZATION POINT

⑥: NO

NOT SYNCHRONIZATION POINT

S3003: SET 0 TO BASE CYCLE COUNTER@@

S3004: SYNCHRONIZATION POINT DETECTION PROCESSING

Fig. 9

①: EXECUTE FOR EACH Cycle_Synch EVENT

②: SLAVE SIDE SYNCHRONIZATION POINT DETECTING SECTION 2

S4000: INSTRUCTION DATA RECEIVED IN THE LAST CYCLE?

③: YES

RESPONSE CYCLE

④: NO

NOT RESPONSE CYCLE

S4001: READ NEXT SYNCHRONIZATION POINT CYCLE_TIME VALUE IN
INSTRUCTION DATA.

S4002: OBTAIN THE DIFFERENCE BETWEEN THE CYCLE_COUNT VALUE
OF THE NEXT SYNCHRONIZATION POINT CYCLE_TIME REGISTER AND
THE CYCLE_COUNT VALUE OF THE HOME STATION CYCLE_TIME
REGISTER.

S4003: OBTAIN THE RESIDUE OF THE RESULT OF DIVIDING { (TOTAL
NUMBER OF CYCLES) - (THE DIFFERENCE) } BY (TOTAL NUMBER OF
CYCLES) AND SET THE OBTAINED VALUE TO THE BASE CYCLE
COUNTER.

S4007: INCREMENT BASE CYCLE COUNTER

S4004: BASE CYCLE COUNTER >= TOTAL NUMBER OF CYCLES?

⑤: YES

SYNCHRONIZATION POINT

⑥: NO

NOT SYNCHRONIZATION POINT

S4005: SET 0 TO BASE CYCLE COUNTER.

S4006: SYNCHRONIZATION POINT DETECTION PROCESSING

Fig. 10

- ①: EXECUTE FOR EACH Cycle_Synch EVENT
- ②: SLAVE SIDE SYNCHRONIZATION POINT DETECTING SECTION 3

S5000: INSTRUCTION DATA RECEIVED IN THE LAST CYCLE?

- ③: YES

RESPONSE CYCLE

- ④: NO

NOT RESPONSE CYCLE

S5001: SET INSTRUCTION CYCLE VALUE IN INSTRUCTION DATA
INFORMATION PLUS 1 TO BASE CYCLE COUNTER

S5005: INCREMENT BASE CYCLE COUNTER

S5002: BASE CYCLE COUNTER>=TOTAL NUMBER OF CYCLES?

- ⑤: YES

SYNCHRONIZATION POINT

- ⑥: NO

NOT SYNCHRONIZATION POINT

S5003: SET 0 TO BASE CYCLE COUNTER

S5004: SYNCHRONIZATION POINT DETECTION PROCESSING

Fig. 11

①: EXECUTE FOR EACH Cycle_Synch EVENT

② : MASTER/SLAVE SIDES SYNCHRONIZATION POINT DETECTING
SECTIONS 4

S6000: CYCLE_COUNT VALUE IS DIVISIBLE BY THE TOTAL NUMBER
OF CYCLES?

③: YES

SYNCHRONIZATION POINT

④: NO

NOT SYNCHRONIZATION POINT

S6001: SET 0 TO BASE CYCLE COUNTER

S6002: SYNCHRONIZATION POINT DETECTION PROCESSING

S6003: INCREMENT BASE CYCLE COUNTER

Fig. 12

- ①: SYNCHRONIZATION POINT
- ②: COMMUNICATION PERIOD
- ③: NEXT COMMUNICATION PERIOD
- ④: SYNCHRONOUS PACKET (SIMULTANEOUS BROADCAST)
- ⑤: SYNCHRONOUS PACKET

Fig. 13

- ①: SYNCHRONIZATION POINT
- ②: COMMUNICATION PERIOD
- ③: NEXT COMMUNICATION PERIOD
- ④: SYNCHRONOUS PACKET (SIMULTANEOUS BROADCAST)
- ⑤: SYNCHRONOUS PACKET
- ⑥: TIMER